**Claims**

1. A method for detection of bone fractures using image processing of a digitised x-ray image.

2. The method as claimed in claim 1, wherein the image processing comprises extracting a contour of the bone in the digitised x-ray image.

3. The method as claimed in claim 2, wherein the extracting of the contour of the bone in the digitised x-ray image comprises applying a Canny edge detector to the digitised x-ray image.

4. The method as claimed in claims 2 or 3, wherein the extracting of the contour of the bone in the digitised x-ray image comprises applying a snake algorithm to the digitised x-ray image.

5. The method as claimed in claim 4, wherein applying the snake algorithm to the digitised x-ray image comprises creating a Gradient Vector Flow (GVF).

6. The method as claimed in any one of claims 1 to 5, wherein the image processing comprises an adaptive sampling scheme.

7. The method as claimed in claim 6, wherein the adaptive sampling scheme comprises identifying a bounding box around an area of interest based on the extracted contour of the bone.

8. The method as claimed in claim 7, wherein the bounding box is divided into a predetermined number of sampling points.

9. The method as claimed in claim 8, wherein a sampling region around the sampling points is chosen to cover image pixel points between the sampling points.

10. The method as claimed in any one of the preceding claims, wherein the image processing comprises calculating one or more texture maps of the digitised x-ray image and detecting a bone fracture based on respective reference texture maps.

11. The method as claimed in claim 10, wherein the texture maps comprise a Gabor texture orientation map.

12. The method as claimed in claims 10 or 11, wherein the texture maps comprise a Intensity gradient direction map.

13. The method as claimed in any one of claims 10 to 12, wherein the texture maps comprise a Markov Random Field texture map.

14. The method as claimed in any one of claims 10 to 13, wherein the image processing comprises calculating one or more difference maps between the respective texture maps calculated for the digitised x-ray image and the respective reference texture maps.

15. The method as claimed in claim 14, wherein the difference maps are classified using one or more classifiers.

16. The method as claimed in claim 15, wherein the difference maps are classified using Bayesian classifiers.

17. The method as claimed in claims 15 or 16, wherein the difference maps are classified using Support Vector Machine classifiers.

18. The method as claimed in claim 1, wherein the image processing comprises:

determining a femoral shaft axis in the digitised x-ray image;

determining a femoral neck axis in the digitised x-ray image;

measuring an obtuse angle between the femoral neck axis and the femoral shaft axis; and

detecting the bone fracture based on the measured obtuse angle.

19. The method as claimed in claim 18, comprising calculating level lines from respective points on the contour of the bone in the digitised x-ray image and extending normally to the contour to respective other points on the extracted contour.

20. The method as claimed in claim 19, wherein determining the femoral shaft axis is based on midpoints of the level lines in a shaft portion of the contour of the bone.

21. The method as claimed in claims 19 or 20, wherein determining the femoral neck axis is based on the level lines in femoral head and neck portion of the contour of the bone.

22. A system for detection of bone fractures comprising:
means for receiving a digitised x-ray image; and
means for processing the digitised x-ray image for detection of bone fractures.

23. A system for detection of bone fractures comprising:
a database for receiving and storing a digitised x-ray image; and
a processor for processing the digitised x-ray image for detection of bone fractures.